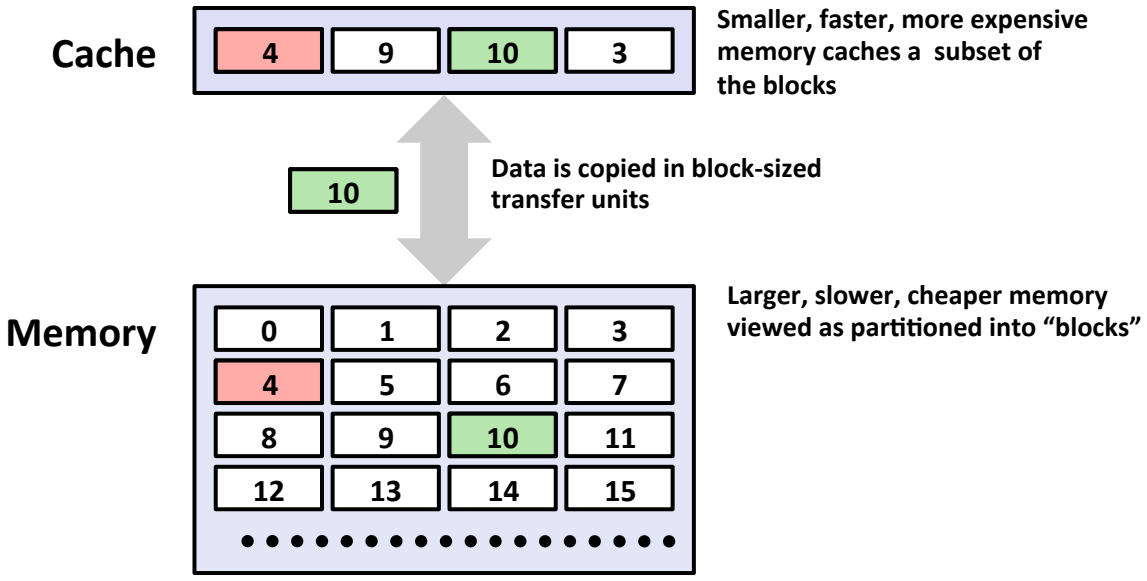
Cache Design



Direct-Mapped Cache

Line	V	D	Tag	Data (8 Bytes)
0				
1				
2				
3				
4				
…	…			
1020				
1021				
1022				
1023				

Direct-Mapped Address Components

(32-bit example)

Tag (19 bits)	Index (10 bits)	Byte offset (3 bits)

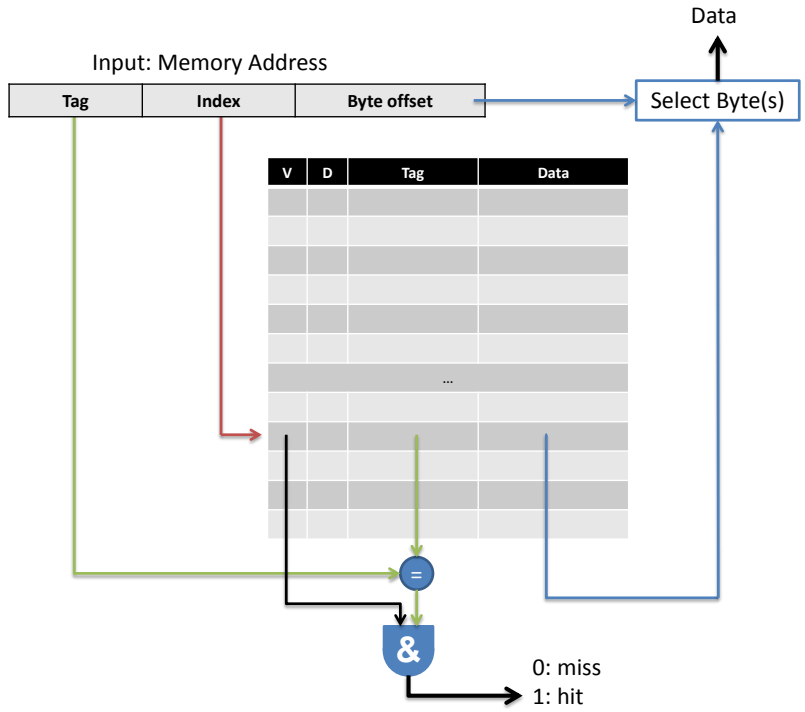
Line	V	D	Tag	Data (8 Bytes)
0				
1				
2				
3				
4				
…	…			
1020				
1021				
1022				
1023				

Direct-Mapped Address Components

Tag (19 bits)	Index (10 bits)	Byte offset (3 bits)
4217	4	2

Line	V	D	Tag	Data (8 Bytes)
0				
1				
2				
3				
4	1		4217	
…	…			
1020				
1021				
1022				
1023				

Direct-Mapped Cache Lookup



Direct-Mapped Cache

(32-bit example)

Tag (19 bits)	Index (10 bits)	Byte offset (3 bits)

Line	V	D	Tag	Data (8 Bytes)
0				
1				
2				
3				
4				
...	...			
1020				
1021				
1022				
1023				